

What is claimed is:

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1. A RAID apparatus comprising:
a plurality of physical disk units for forming same
logical volumes; and
a disk controller for accessing any physical disk
unit which forms a designated logical volume to thereby
access said designated logical volume,
said disk controller including a memory for storing a
number of operations, requested to each physical disk
10 unit, for each physical disk unit, and
control means for accessing one of said plurality of
physical disk units which form the designed logical
volume, in accordance with said number of operations.

15 2. The RAID apparatus according to claim 1, wherein
said control means compares said numbers of operations of
a plurality of physical disk units which form said
designated logical volumes with each other, and selects
that physical disk unit which has a minimum number of
20 operations.

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3. The RAID apparatus according to claim 1, wherein
said control means includes:

25 a channel adapter circuit for performing interface
control with a high-rank apparatus;
a device adapter circuit for accessing said physical
disk units in accordance with a requested operation; and

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a resource manager circuit for determining a physical disk unit in accordance with said number of operations in said memory in response to a transfer request from said channel adapter circuit, and requesting said device
5 adapter circuit to perform an operation for accessing said determined physical disk unit.

Sub B2 4. The RAID apparatus according to claim 3, wherein said resource manager circuit increments a number of
10 operations of said determined physical disk unit in accordance with a request on said operation and decrements a number of operations of a physical disk unit whose operation has been completed, in accordance with an end of said operation of said device adapter circuit.

15 Sub A3 5. The RAID apparatus according to claim 3, wherein said memory stores status information indicating statuses of said physical disk units; and

said resource manager circuit refers to said status
20 information to determine whether those physical disk units which form said designated logical volume are normal and selecting a normal physical disk unit.

6. The RAID apparatus according to claim 3, wherein
25 for each logical volume, said memory stores information of a plurality of physical disk units which hold said logical volume; and

said resource manager circuit refers to said memory to select a physical disk unit on which said logical volume is allocated.

5 7. An access control method for a RAID apparatus comprising a plurality of physical disk units for forming same logical volumes, and a disk controller for accessing any physical disk unit which forms a designated logical volume to thereby access said designated logical volume,
10 said method comprising the steps of:

 determining a plurality of physical disk units which form a designed logical volume; and

 selecting one of said determined physical disk units in accordance with a number of operations requested to
15 said physical disk units.

 8. The access control method according to claim 7, wherein said selecting step compares said numbers of operations of a plurality of physical disk units which
20 form said designated logical volumes with each other, and accesses that physical disk unit which has a minimum number of operations.

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25 9. The access control method according to claim 7, wherein said determining step determines said plurality of physical disk units in response to a transfer request from a high-rank apparatus; and

5 said selecting step includes a step of requesting an
operation for accessing said physical disk unit deter-
mined in accordance with said number of operations and a
step of accessing said physical disk unit in accordance
with said requested operation.

10. The access control method according to claim 9,
further comprising the steps of:

incrementing a number of operations of said deter-
10 mined physical disk unit, stored in a memory, in accor-
dance with a request on said operation; and

decrementing a number of operations of a physical disk unit whose operation has been completed, in accordance with an end of said operation of said physical disk unit.

11. The access control method according to claim 7,
wherein said selecting step includes:

20 a step of referring to status information to deter-
mine indicative of statuses of said physical disk units,
stored in a memory, to determine whether those physical
disk units which form said designated logical volume are
normal; and

a step of selecting a normal physical disk unit.

12. The access control method according to claim 7,
wherein said determining step refers to information of a

plurality of physical disk units which form said logical volume, stored in a memory, to determine physical disk units forming said logical volume.

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